REMARKS

Claims 1-7, 10, 11, 13-22, and 24-30 were rejected under 35 U.S.C. 102(e) as being anticipated by Backman et al. U.S. Patent No. 7,124,322 (hereinafter "Backman"). Claims 8, 9, 12, 22, and 23 were rejected under 35 U.S.C. 103(a) as being unpatentable over Backman in view of Neuman et al. U.S. PGPUB No. 20030217299. Claims 1, 10, 13, 17, 24, and 28 were rejected under 35 U.S.C. 112 for being indefinite with regard to the word "reboot" in the specification and claims.

Regarding the rejection under 35 USC 112 and the assertion that the specification is indefinite in that a potentially inoperable "cold boot" could fit within the popular definition of the word "reboot". Applicants disagree with the Examiners assertion that this potential ambiguity put forward by the Examiner renders the specification indefinite. While a patent application must enable one of skill in the art to make and use the invention without undue expermentation, Applicants assert that it is not necessary to specify the invention to such detail that absolutely no experimentation or decision making is necessary. As detailed in the following paragraphs, Applicants assert that one can assume that one of skill in the art would intelligently apply the principles communicated in the specification and would not make the error suggested by the Examiner.

In particular, Applicants submit that each of the independent claims as well as the written description make it clear that the computer is in an operating condition when the reboot operation is performed. For example, the limitation "a boot control module configured to ... reboot the processor" communicates to one of skill in the art that the boot control module has power available and is in an operational state in order to effect the functionality described by the claims and specification.

Applicants also assert that the recitation of term "module" implies a powered and operating state in order to be operable and effect the functionality ascribed to the module – particularly given Applicants definition of module within the specification [see the first 3 paragraphs of the detailed description]. Applicants assert that it is obvious to one of skill in the art that conventional electronic or software "modules" cannot function without power and that one of skill in the art would assume that the boot control module would be in a powered and operational state when a reboot function would be invoked. Applicants therefore assert that one of skill in the art would understand that the preferred mode for a reboot operation would be a warm boot.

Applicants also assert that one of skill in the art would also not be inclined to assume a cold boot because (as the Examiner has indicated) in many cases a cold boot could be inoperable. Applicants note that there are many ways to render an invention inoperable and assert it is not necessary to identify all the ways in which an invention could be rendered inoperable in order to fulfill the written description requirement of 35 USC 112.

From a technical standpoint one of skill in the art would appreciate that "rebooting" a conventional computing device in its simplest form involves resetting the processor via a hardware signal or a software instruction so that the program counter is reset to zero or some other standard location within program memory so that it can restart the (boot) program located at that location. Applicants acknowledge that such a process is a warm boot operation and assert that a warm boot is the historical meaning of "reboot" and is well understood by those of skill in the art and fits the plain English meaning conveyed by the prefix "re" i.e. to boot again as opposed to a cold boot operation which conveys the concept of booting for the first time. Applicants therefore assert that under the context provided by the claims, specification, and working knowledge of those of skill in the art the term "reboot" as used in the specification and claims implies a warm boot operation.

The webopedia online dictionary communicates the difference between a warm (or soft) boot and a cold boot:

> Warm Boot
>
> Refers to restarting a computer that is already turned on via the operating system. Restarting it returns the computer to its initial state. A warm boot is sometimes necessary when a program encounters an error from which it cannot recover. On PCs, you can perform a warm boot by pressing the Control, Alt, and Delete keys simultaneously. On Macs, you can perform a warm boot by pressing the Restart button.
>
> Also called a *soft boot*.
>
> Contrast with cold boot, turning a computer on from an off position.

Applicants note that the invention is directed to recovering from an abnormal state or error condition as is explicitly associated with a "warm boot" operation in the preceding definition. Applicants also note that the definition of "cold boot": is "turning a computer on from an off position" rather than turning off and then turning on a computer. In other words during a warm boot operation the computer is already on and is therefore "warm" while a cold boot operation begins with the computer off and therefore in a "cold" state.

Applicants acknowledge that the term "reboot" is sometimes casually used interchangeably by those who are not skilled in the art with manually "cycling power" on a computer. However, Applicants assert that such casual and inappropriate usage would not be used or assumed by those that are skilled in the art.

Regarding the term "reboot", the examiner has noted that http://www.scala.com/definition/reboot.html defines reboot as the following:

Definition of reboot

reboot

To reboot your computer is to restart it without turning off the power. This is also known as a "warm boot". This is most often accomplished on a PC by simultaneously holding down and then releasing the keys: Ctrl + Alt + Delete. Also see boot.

Applicants assert that the proceeding definition is more precise than some the popular definitions cited by the Examiner and is congruent with the historical definition of reboot and of Applicants usage of the term reboot. A review of the various definitions of reboot shows that the difference between a warm boot and a cold boot is ubiquitously understood and that the term "warm boot" is typically invoked to alleviate an error condition (to which the present invention is directed) and refers to a computer that is already on. Applicants therefore assert that one of skill in the art would interpret the term "reboot" in the specification and claims as a warm boot operation and not a cold boot operation.

Applicants also assert that those who are truly skilled in the art realize that conventional (i.e. most) computers and electronic devices cannot cycle their own power and thus cannot do a cold

boot. To do so requires manual human intervention or special circuitry included within, or inline with, the power supply of the electronic device or computer. Since the specification does not refer to manual human intervention or such specialized power circuitry, Applicants assert that the preferred assumption for the word "reboot" for the claims and specification would be a "warm boot".

Assuming for a minute that one of skill in the art would be confused if "reboot" meant "a warm boot" or a "cold boot". Given that situation, one should ponder how much experimentation would be required by one of skill in the art to determine if a warm boot or cold boot should be used. Applicants assert that little or no actual experimentation would be required since one of skill in the art would most likely conduct a "thought experiment" that would resolve the ambiguity (just as the Examiner was able to do). However, if one of skill in the art did not conduct a thought experiment and conducted an actual physical experiment, only two possibilities would need to be tested to determine if a reboot operation should be a cold boot or a warm boot. Applicant asserts that testing two possibilities is not "undue" experimentation, that the written description is sufficiently definite to enable one of skill in the art to make and use the invention.

Given the foregoing, Applicants assert that the specification is definite and enabling that the rejection under 35 U.S.C. 112 is improper. However, despite the foregoing reasoning, Applicants are willing to add clarifying language to the specification and claims with the mutual understanding from the Examiner that no new subject matter has been added to the Application.

Regarding the rejections under 35 U.S.C. 102 and 103, a review of the present invention may help clarify the novelty of Applicants' claims over the references under consideration. Referring to the written descriptions of Figures 1 and 2 of the application, a processor is booted with a standard operating kernel that supports normal operating conditions. Under normal operating conditions, data is stored in a volatile memory. If an abnormal operating condition that threatens the loss of data in the volatile memory is detected, the processor is rebooted with a data transfer kernel. Rebooting the processor clears the processor of any previously running processes and thereby enables the processor to run a data save operation supported by the data transfer kernel. The data save operation saves the data located in the volatile memory to a non-volatile storage device.

Regarding the rejection of claims 1, 10, 13, 17, 24, and 28, Applicants assert that Backman does not disclose the claimed limitation of "data transfer kernel configured to support a data save

operation". Applicants note the follow definition of Kernel from Webopedia:

> Kernel
>
> The central module of an operating system. It is the part of the operating system that loads first, and it remains in main memory. Because it stays in memory, it is important for the kernel to be as small as possible while still providing all the essential services required by other parts of the operating system and applications. Typically, the kernel is responsible for memory management, process and task management, and disk management.

While Backman does disclose a data backup utility or application, Applicants assert that Backman does not disclose "a data transfer kernel configured to support a data save operation". The use of a kernel dedicated to data transfer provides additional functionality over a utility or application including immediate accessibility, a deterministic execution time, and faster execution since the computer does not need to continually switch context between the operating system kernel and an application or utility. For example, a typical computer must switch state between the supervisor privileges associated with ring 0 (i.e. kernel) processes and the user privileges of outer ring processes that are executed by applications and utilities. The overhead for such context switching can considerably reduce performance and make the computing system more vulnerable to malware such as viruses.

Applicants assert that the cited prior art does not suggest or teach a motivation for providing a data transfer kernel configured to support a data save operation. Applicants therefore continue to assert that Backman discloses a solution for saving data distinct in operation, objective, and perspective from the solution disclosed by the present invention. Referring to column 5 lines 56-67 and column 6 lines 25-45, Backman teaches a data restoration solution that includes backing up data stored on a work station hard drive through an imaging process during normal operations, rebooting the workstation to a restoring environment in response to a massive data loss or failure of the hard drive, and restoring the hard drive from the data images produced by the aforementioned imaging process. Therefore, Applicants' read Backman as disclosing a hard drive restoration solution via

previously generated data images.

In contrast to Backman, Applicants disclose a solution for saving data in volatile memory to a non-volatile memory in response to abnormal operating conditions via a data transfer kernel. As such, Applicants respectfully assert that Backman and the present invention cover processes that are not only distinct in terms of claim elements, but are distinct in perspective and objectives as well.

Given the foregoing, Applicants respectfully assert that Backman fails to anticipate the present invention and also fails to provide a motivation to combine other references to render the present claims obvious. More particularly, Backman fails to disclose, suggest, teach, or provide a motivation for rapidly, deterministically transferring data that includes rebooting a processor with a data transfer kernel under an abnormal operating condition that threatens a loss of data in volatile memory and saving the data located in the volatile memory to a storage device via a data save operation.

Regarding the rejection of claim 8, Applicants assert that Neuman does not disclose "a data transfer kernel configured to conduct a power down procedure." It appears to the Applicants that the office action has essentially ignored the limitation of "a data transfer kernel" within Applicants' claims. Applicants assert that the inclusion of a power down procedure within a data transfer kernel facilitates a speedy and safe shutdown in the face of threatening conditions and is only obvious by using impermissible hindsight.

For the foregoing reasons, Applicants submit that each of the claims is in condition for allowance. In the event any questions remain, the Examiner is respectfully requested to initiate a telephone conference with the undersigned.

Respectfully submitted,

Date: November 5, 2007

/Brian C. Kunzler/

Kunzler & McKenzie
8 E. Broadway, Suite 600
Salt Lake City, Utah 84111
Telephone: 801/994-4646

Brian C. Kunzler
Reg. No. 38,527
Attorney for Applicant